

**ABSTRACT**

A focussed beam antenna array includes a plurality of element antennas and a feeding network connecting the element antennas to one or more microwave sources. A feeding coefficient is provided for each element antenna. One or both of i) the relative position of the element antennas, and ii) the feeding coefficient for each element antenna may be selected to cause microwave signals transmitted from the antenna array to focus on a required focal surface. The array enables microwave signals to be focussed in the near field zone, providing particular advantages in applications such as sensing a property (for example permittivity or related parameters such as moisture content and density) of objects such as fruit or wood.